

**Collaboration with ARSG**  
*DRAFT Timeline*

**1/17/13**

ARSG Meeting Summary 1/17/13

Main Topics 2. EPA Red & Bonita update & ARSG input for tasks to perform - (see hard copy notes for discussion details)

**8/15/13**

ARSG Meeting Summary, Aug. 15, 2013

Main Topics 6. Red & Bonita exploration (see hard copy notes for discussion details)

**2/20/14**

ARSG Meeting Summary, Feb. 20, 2014

Topics Red & Bonita – Steve Way gave a powerpoint presentation... (see hard copy notes for discussion details)

**7/22/14**

ARSG Meeting Summary, July 22, 2014

Topic 3. Update on Activities Regarding Red & Bonita and Gold King. – Brent Lewis with BLM reported on EPA activities regarding these sites. EPA plans to packer test at proposed bulkhead locations in the Red and Bonita early this fall to help determine hydraulic conductivity of surrounding rock for engineering purposes. EPA is also planning to open up the Gold King #7 level to explore the underground workings this fall.

Draft ARSG Timeline for Reducing Metal Loading in Upper Animas River Basin, 7/22/14

Action 5. Open Up and Explore Gold King #7 Level for Potential Remediation Actions

Under certain circumstances, up to \$14 million may be available for the preferred solution, not including potential EPA funding for bulkheading the Red & Bonita and opening up the Gold King. There is possibly funding from other sources as well.

9/23/14

ARSG Meeting Summary, Sept. 23, 2014

Announcements

- EPA is sponsoring an Availability Session the evening after the ARSG afternoon meeting. It is an opportunity to talk informally with EPA, BLM, USGS, and ARSG. Update: Attendance was good, and there was a lot of discussion.
- EPA is meeting with the La Plata County Commissioners the next evening in Durango. Update: About 30 to 40 people attended. Most were familiar with ARSG's work and had attended at least some meetings.

Update 3. Activities Regarding Red & Bonita and Gold King. – EPA tested the hydraulic conductivity of rock in the Red & Bonita over 200 feet back in the workings at a potential site for a bulkhead. They found that the rock was solid, with low conductivity and suitable for a bulkhead. BLM has been monitoring quality and depth of shallow groundwater in the vicinity of the mine, and in late September, EPA collected more flow and quality data at other mine drainages and various stream locations in the area. These data will be used to identify changes in the mountain hydrology that might result because of the bulkhead.

EPA contractors also began to open up the Gold King, but it is collapsed farther back than anticipated. Also, there is a blockage near the entrance and a previously unidentified small mine pool that needs to be drained. Entering the mine is proving to be more difficult than hoped. Rather than pressing on with winter coming, EPA has stopped work and will re-evaluate its approach for next summer.

Because of recent heavy rains, EPA and its partners had to postpone sampling throughout the upper Animas Basin planned in late September. However, the postponement only lasted a couple of days, and most of the planned sampling was completed

Cynthia Peterson Site Visit Report, Silverton and Durango, Colorado, Upper Animas, Sept. 22-25, 2014

Open House Availability Session – a good number of community members (by my rough estimate, about 25-30) attended the session, including the San Juan County Commissioners (and a candidate), the County Administrator, the Silverton Mayor, as well as some local residents. There were probably about as many federal and state representatives (BLM, EPA CDPHE and USGS) in attendance. Almost everyone engaged in conversation, and participants reported that they liked this informal format more than the traditional public meeting. Since Rob Runkle couldn't get his PowerPoint to loop successfully, he gave a short presentation at the end of the session about the OTEQ results. He and Steve answered questions about their work. We had to close the session

down at 8:30, a half hour after it was scheduled to close. In the future, we should try to use the availability session model, even when we have formal public comment meeting.

La Plata BOCC meeting – Steve Way talked about his plans to bulkhead the Red & Bonita. He discussed why it is a good candidate for a bulkhead and whether drainage would find other pathways to Cement Creek. He answered a question about whether all the tunneling and plugging may be causing water to be syphoned into a watershed in which it had not historically been found. He said that the Red & Bonita was thought to be self-contained, so that wouldn't be an issue there. Paula Schmittiel summarized EPA's plans going forward, emphasizing collaboration with ARSG and our state and federal partners. Brent Lewis, BLM, spoke in support of continuing efforts in the watershed, and Doug Jamison, CDPHE, spoke about the state's need for NPL listing in order to provide financial support for cleanup efforts. There was only one comment from the public, which expressed support for cleaning up the river.

**9/29/14**

Draft ARSG Timeline for Reducing Metal Loading in Upper Animas River Basin, 9/29/14

Action 5. Open Up and Explore Gold King #7 Level for Potential Remediation Actions – Summer 2015

Explanatory Note 5.) EPA has entered into an agreement with the property owner of the Gold King to open up the collapsed portal at the #7 level to investigate the workings in fall of 2014. Mine drainage from the Gold King varies greatly depending on the time of year. At certain times, it is the biggest single mining-related source of metals in the basin. Underground investigation hopefully will help determine the locations of water infiltration and if anything can be done to prevent it.

**1/27/15**

ARSG Meeting Summary, January 27, 2015

Update 3. Activities Regarding Red & Bonita and Gold King – Steve Way with EPA had sent an email saying that the design of a bulkhead for the Red & Bonita is underway and that they are discussing how best to approach the opening of the Gold King. He will have more details for a later ARSG meeting sometime this spring.

**4/28/15**

ARSG Meeting Summary, April 28, 2015

Brief 2. Activities Regarding Red & Bonita and Gold King – EPA plans to install the

bulkhead in the R&B and open up the Gold King this summer. There will be a much more detailed discussion of the plans at the next ARSG meeting in May.

5/1/15

Email from Steve Way 5/1/15

To Peter Butler [Personal Email/Ex. 6] Bill Simon [Personal Email/Ex. 6] fearneng@rmi.net; Lewis, Brent <b1lewis@blm.gov>; Kirstin Brown - DNR <kirstin.brown@state.co.us>; Randy Perlis <randy.perlis@state.co.us>; Todd Hennis [Personal Email/Ex. 6] Larry Perino (larry.perino@kinross.com); Lisa Richardson (lrichard@blm.gov); Stover - DNR, Bruce <bruce.stover@state.co.us>; William Tookey <sanjuancounty@frontier.net>

RE: Red and Bonita Mine - bulkhead and Gold king mine portal rehab plans

Attachment: Red and Bonita Mine Bulkhead Construction - Requirements and Specifications

Gold King Mine: Status Report

As you know we adjusted our plans based on findings last fall when we started the removal of the blockage at the adit. The current elevation of the top of the dump appears to be approximately 4 to 6 feet above the floor of the adit. A revised approach to the debris removal and portal construction were developed this winter, and is outlined in general below. Again, we did review this with ARSG members in the fall, and we will be able to discuss this again in May.

1. A conceptual design and basic specifications have been developed based on standard DRMS plans for portal construction using 10 ft diameter CMP. This is being used versus steel arch sets because of the nature of the terrain and ground conditions at the adit.
2. Re-grading a portion of the waste dump will be required initially to lower the receiving channel for the current discharge.
3. Water management during the removal of the blockage will be operated in similar manner to that at the Red and Bonita. We are planning on having to deal with a larger volume of water than originally anticipated based on the fact that there is a 4 to 6 foot impoundment at the beginning of the adit.
4. Entry into the workings will depend on the conditions encountered following the portal construction. (On this topic, in the past I have requested mine workings maps from members of the ARSG who indicated that they do have such maps. As you know, such maps would be very useful to the operations prior to and during the work.

This information is provided as a preliminary outline of the plans that are still being developed. As for the bulkhead design details, while the bid package has been released with the design, if necessary, appropriate modifications can and will be made. The opportunity for input to the specifics remains open and I look forward to discussing this with the group in late May.

5/27/15

Cynthia Peterson Trip Report, Silverton - Telluride, Colo., May 26-30, 2015

Steve presented information about the Red and Bonita Removal Action. Kirsten Brown expressed interest in a public meeting to explain bulkheading in general and the specific work taking place at the Red and Bonita. It might be done at the July meeting, which will be held in the evening. Bill Simon said they try to keep public meetings separate from ARSG meetings. Kirsten thought it might be a good idea to hold a meeting in Durango, too. Cynthia will follow up with Kirsten and Steve Way. ()

ARSG Meeting Summary, May 27, 2015

Topic 6. Activities Regarding Red & Bonita and Gold King: Steve Way with EPA and Allen Sorenson with DRMS gave a presentation on installing the Red & Bonita bulkhead this summer. Much of the discussion focused on the location of the fracture zone we call the Bonita fault which may be the source of most of the water. The expectation is that the water level will rise in the fracture zone and possibly express in a new location. The question is where might it surface, how much will surface, and what will be the quality. One possibility is that water will surface where the North Fork of Cement Creek crossed the fault zone, below the Gold King #7 level. EPA plans on an intensive sampling program at many sites within the vicinity of the Red & Bonita once the bulkhead valve is closed. Work will begin in a few weeks. Closure is expected in early fall. The process will be reversible if need be because the valve can be re-opened.

The first step for installing the bulkhead is to muck out the sludge in the tunnel back to the bulkhead site. The sludge will be caught and treated in a system directly below the mine. (As a side note, Allen mentioned that last year when the mine was explored, they found evidence of check dams and diversions indicating that at some point, the miners were dealing with water in the mine workings.) Once this step has been completed, the contractor will start to open up the Gold King #7 level. There is a pool of water several feet deep behind the collapsed portal. The treatment system at the Red & Bonita will be used to handle the water and muck from the Gold King as work begins there. EPA is willing to remove the initial blockage into the Gold King, but if there is another collapse farther in, they may not want to expend the resources to open it up.